

IN THE CLAIMS:

Please cancel Claim 5 and incorporate the substance thereof into Claim 1,
and otherwise amend the claims as follows:

1. (Currently Amended) A scanning optical apparatus comprising:

incident optical means for causing at least one light beam emitted from light
source means to be incident on deflection means; and

image formation means ~~including at least~~ consisting of one refractive optical
element and ~~at least~~ one diffraction optical element for imaging the at least one light beam
reflected and deflected by the deflection means on a surface to be scanned,

wherein a front focus position of the diffraction optical element in the sub-
scanning cross-section is provided between a power arrangement in the sub-scanning cross-
section of an on-axis of the refractive optical element and a power arrangement in the sub-
scanning cross-section of an off-axis of the refractive optical element, in an optical axis
direction; and

wherein the diffraction optical element is provided between the refractive
optical element and the surface to be scanned, in the optical axis direction

~~wherein among the elements included in said image formation means, the
diffraction optical element is closest to the surface to be scanned and has at least one of an
incident surface having a convex shape in a sub-scanning cross-section facing the
deflection means and an exit surface having a convex shape in the sub-scanning cross-
section facing the surface to be scanned; and~~

~~wherein a diffraction grating is formed on one of the incident surface and the exit surface of the diffraction optical element.~~

2. and 3. (Cancelled)

4. (Original) An apparatus according to Claim 1, wherein the refractive optical element has a meniscus shape in a main scanning cross-section such that a concave surface faces the deflection means.

5. (Cancelled)

6. (Previously Presented) An apparatus according to Claim 1 further comprising at least one of tilt adjusting means and shift adjusting means for adjusting a position of the diffraction optical element.

7. (Previously Presented) An image forming apparatus comprising:
a scanning optical apparatus according to Claim 1;
a photosensitive member arranged on the surface to be scanned;
a developing member for developing an electrostatic latent image formed on said photosensitive member by the light beam scanned by said scanning optical apparatus as a toner image;

a transfer member for transferring the developed toner image onto a material to be transferred;

a fixing member for fixing the transferred toner image on the material to be transferred; and

a printer controller for converting code data inputted from an external device into an image signal and inputs the image signal into said scanning optical apparatus.

8. (Cancelled)

9. (Previously Presented) A scanning optical apparatus according to Claim 1,

wherein the following condition is satisfied:

$$0.5 < |e2/s1| < 1.2$$

where e2 represents a distance between an exit surface of the refractive optical element on an optical axis and an incident surface of the diffraction optical element on the optical axis, and

s1 represents a distance between the incident surface of the diffraction optical element on the optical axis and a front focus position of the diffraction optical element in a sub-scanning cross-section.

10. to 14. (Cancelled)

15. (Original) An apparatus according to Claim 9, wherein the following condition is satisfied:

$$0.55 < |e2/s1| < 1.1.$$

16. and 17. (Cancelled)

18. (Cancelled) An apparatus according to Claim 1, wherein when the diffraction grating is formed on the incident surface, the exit surface has a convex shape in the sub-scanning cross-section facing the surface to be scanned, and when the diffraction grating is formed on the exit surface, the incident surface has a convex shape in the sub-scanning cross-section facing the deflection means.

19. (Previously Presented) An apparatus according to Claim 1, wherein a plurality of light beams are emitted from the light source means.

Please add Claim 20, as follows:

20. (New) An apparatus according to Claim 1, wherein even if a position of said refractive optical element is shifted vertically from the optical axis in a sub-scanning cross-section, an on-axis principal ray and an off-axis principal ray of the at least one light beam reach the surface to be scanned at heights whose difference in the sub-scanning direction is less than $\pm 10 \mu\text{m}$.